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NEW DIPTERA BELONGING TO THE GENUS *MESOGRAMMA* LOEW (SYRPHIDÆ)

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Up to the present time no key for the separation of the species of *Mesogramma* has been published and determination is, therefore, a very tedious process inasmuch as the descriptions are scattered through numerous publications. Although there are still many species of which I have not seen representatives and which cannot be satisfactorily included, it is hoped that the following key may be a useful start.

In this genus there is, in some species, a great deal of variation in the color of the abdomen and forms occur in which the black markings normally present are entirely absent or but faintly indicated. The typical forms should trace out readily enough in the following key but difficulty may be experienced in the case of the pale-colored examples. Most of these may be readily identified in the male sex by comparison of the genitalia with species having the same general structure and coloration in other parts of the body.

Table of Species

1. Mesonotum with yellow lateral margins or with yellow markings laterally in addition to the yellow humeri....6.
   Mesonotum with only the humeri yellow....2.
2. Face with a median blackish vitta....3.
   Face wholly pale-colored....5.
3. Middle tibiæ whitish yellow....4.
   Middle tibiæ with broad brown or blackish band....*anthrax* Schiner.
4. Abdomen of female with opaque black markings, of male shining blackish and reddish....*flavipleura* Hall.
   Abdomen of female shining (male with yellow face)....*basilare* Wiedemann.
5. Anterior tibiæ with a blackish median band....*nitidiventris*, n. sp.
   Anterior tibiæ wholly yellow....*basilare* Wiedemann.
6. Margin of mesonotum black in front of the suture; humeri and sometimes a spot on the notopleura yellow....7.
   Mesonotum laterally with at least a narrow yellow lateral stripe in front of the suture....9.
7. Posterior tibiæ wholly yellow; abdomen with very broad yellow fasciæ. *planiventris* Loew.
   Posterior tibiæ black except the base and apex....8.

8. Abdomen vittate ..... *boscii* Macquart.
   Abdomen fasciate ..... 38.
9. Posterior femora and tibiæ yellow, at most with obscure reddish bands ..... 10.
   Posterior femora or tibiæ with black or brown bands ..... 18.
10. Abdomen with the lateral margins wholly pale yellow ..... 11.
    Abdomen with the lateral margin in part black ..... 12.
11. Pale abdominal fasciæ transverse, interrupted and enlarged inwardly. *philippi* Shannon.
    Pale abdominal fasciæ very broad, separated by a geminate vitta. *marginata* Say.
    Pale abdominal fasciæ entire, without black markings ..... *calceolata* Macquart.
12. Abdomen with entire, narrow pale yellow fasciæ which sometimes contain small black spots, the apical fasciæ sometimes sub-interrupted ..... 13.
    Abdomen with interrupted or irregular yellow fasciæ; the segments usually with geminate vitta or all reddish ..... 15.
13. Fifth abdominal segment with a median, basal black vitta ..... 14.
    Fifth abdominal segment with basal and apical black fasciæ. *calceolata* Macquart.
14. Scutellum yellowish ..... *duplicata* Wiedemann.
    Scutellum black with yellow border ..... *saphirideiceps* Bigot.
15. The geminate median vitta expands anteriorly on the segments to form a linear black fascia ..... *polita* Say.
    The geminate median vitta does not form a fascia anteriorly ..... 16.
16. Pale abdominal fasciæ linear ..... *vierecki*, n. sp.
    Pale abdominal markings broad ..... 17.
17. Mesonotum with a bright blue median vitta ..... *tibicen* Wiedemann.
    Mesonotum with three grayish vittæ, the median vitta rarely with bluish tinge; smaller species, under 8 mm ..... 48.
18. Scutellum yellow, the immediate base black or the disc a little infuscated ..... 19.
    Scutellum black with yellow border or wholly black ..... 24.
19. The yellow fascia on the third segment bears no black markings except the median geminate vitta ..... 20.
    The yellow fascia is either broken up into spots or bears a black spot toward either side ..... 22.
20. The black pile on the under surface of the posterior femora reaches almost to the base; middle femora short black pilose behind ..... 21.
    The black pile on the posterior femora is limited to the apical half. *subannulata* Loew.
21. Fifth abdominal segment with narrow median vitta on the basal half; black spots in the cross-bands ..... *norma*, n. sp.
    Fifth segment with round or oval basal black spot in the middle; some of the pale bands with black spots or geminate median vitta ..... 43.
22. The black spots in the yellow fasciæ are isolated, often minute ..... 23.
    The black spots are connected with the black posterior border, leaving four irregular yellowish spots and a slender median vitta ..... *maculata* Bigot.
23. The black spots on the third segment are linear and longitudinally placed or transverse ..... 42.

The black spots are oblique and strongly separated from the anterior margins of the segments ..... *laciniosa* Loew.

24. Second abdominal segment with a pair of lunulate yellow spots, their inner ends rather parallel with each other and produced posteriorly; often fused so that the middle of the segment is all yellowish ..... *arcifera* Loew.

Second segment variable in color, the inner ends of the spots at most slightly produced posteriorly ..... 25.

25. Second abdominal segment entirely shining black, with small, obscure shining reddish spots medianly or only the lateral margins reddish ..... 26.

Second abdominal segment with a median yellow fascia or broadly reddish apically ..... 28.

26. A yellow spot above the anterior coxæ ..... 27.

No yellow spot above the anterior coxæ ..... *nitida* Schiner.

27. Yellow lateral vitta of the mesonotum entire; second abdominal segment always black or ferruginous on its whole width posteriorly ..... *floralis* Fabricius.

Yellow lateral vitta broadly interrupted immediately behind the suture; lateral margins of second segment wholly pale reddish ..... *lutzi*, n. sp.

28. Abdomen entirely reddish beyond the second segment ..... 37.

Abdomen with black markings beyond the second segment ..... 29.

29. Posterior tibiæ black or brown except the base and apex ..... 30.

Posterior tibiæ with apical third or more yellow or with sub-basal and subapical bands ..... 33.

30. Abdomen chiefly reddish, the black markings forming longitudinal vittæ. *boscii* Macquart.

Abdomen with broad black fasciæ and median vitta which may be geminate .. 31.

31. The black posterior fascia on the third segment is produced forward laterally at least to the anterior fourth of the segment ..... 32.

The black fascia is scarely produced forward laterally ..... *anchorata* Macquart.

32. The black of the third abdominal segment is most strongly carried forward sublaterally ..... 39.

The black of the third abdominal segment is widest laterally ..... 47.

33. Second abdominal segment broadly black basally ..... 34.

Second abdominal segment orange on more than the basal half .... *clara*, n. sp.

34. The black basal fascia on the second abdominal segment is very much wider than the yellow fascia ..... *maculata* Bigot.

The black basal fascia is scarcely wider than the yellow fascia ..... 35.

35. Third abdominal segment with three yellowish or reddish fasciæ. *saphiridiceps* Bigot.

Third abdominal segment with only one pale fascia or with longitudinal black markings ..... 36.

36. A yellow spot above the front coxæ ..... 40.

No yellow spot above the front coxæ ..... *picta* Schiner.

37. Second abdominal segment wholly reddish ..... *aurulenta* Williston.

Second abdominal segment mostly black ..... *panamensis*, n. sp.

38. Face black in the middle, at least above ..... *verticalis* Curran.

Face wholly yellow ..... *mitis*, n. sp.

39. The black on the third segment is triangularly produced ..... *confusa* Schiner.

The black on the third segment is convex or transverse on the anterior margin toward either side ..... 41.

40. Median black vitta on third abdominal segment geminate. . *floralis* Fabricius.
Median black vitta not geminate ..... *imperialis* Curran.

41. First abdominal segment mostly yellow ..... *purus*, n. sp.
First abdominal segment almost all violaceous ..... *violacea* Curran.

42. Sublateral black markings in the pale fascia on the third segment in the form of transverse, oval spots ..... *pulchellus* Macquart.
Sublateral black markings forming narrow, abbreviated vittæ. *musicus* Fabricius.

43. Posterior calli black-haired ..... *productus*, n. sp.
Posterior calli yellow-haired ..... 44.

44. Smaller species, 4 to 6 mm. in length, the fused posterior forceps of the male more than half as long as the broad lamellate outer forceps ..... 45.
Larger species, 6.5 to 7 mm. in length, the posterior forceps triangular and only about one-fourth as long as the outer forceps .... *duplicatus* Wiedemann.

45. The lamellate outer forceps of the male are deeply emarginate apically on their outer side ..... *difficilis*, n. sp.
The lamellate outer forceps are not marginate but are longest on their outer side or evenly convex ..... 46.

46. Outer forceps obliquely truncate apically ..... *watsoni*, n. sp.
Outer forceps evenly convex apically ..... *tænia*, n. sp.

47. A yellow spot above the front coxæ ..... *tibicen* Wiedemann.
No yellow spot above the front coxæ ..... *slossonæ*, n. sp.

48. The pale abdominal fasciæ reach the lateral margins in more than half the width of the segment ..... *planiventris* Loew.
The pale fasciæ reach the lateral margin very narrowly in front. *floralis* Fabricius.

Mesogramma duplicatus Wiedemann

Syrphus duplicatus WIEDEMANN, 1830, 'Ausser. Zweifl.,' II, p. 142.
Syrphus ochrogaster THOMSON, 1869, 'Eugenies Resa,' p. 494.

There are several specimens before me, including one of each sex compared with the types. It is certain that the Kertesz catalogue is in error in placing *tridentatum* Giglio-Tos as a synonym, and if Giglio-Tos correctly identified Rondani's species the name represents a perfectly valid species.

Several of the specimens which I formerly placed with *duplicatus* I now find represent two distinct species which differ only in their smaller size and the shape of the male genitalia, while still another species is quite as large as *duplicatus*, has the mesonotum mostly black-haired in the male, the posterior calli black-haired in the female and different male genitalia. In *duplicatus* the median projection between the lamellæ is little more than one-fourth as long as the lamellæ, while in the other three species it is almost two-thirds as long.

Mesogramma productus, new species

Very similar to *duplicatus* Wiedemann but the posterior forceps are linear and the mesonotum is partly black-haired. Length, 7 mm.

MALE.—Face strongly produced, yellowish red, the sides broadly white pollinose; frontal triangle reddish, with a bluish reflection in the middle. Occiput cinereous pollinose and white pilose. Vertical triangle long and narrow, bronzed behind, opaque blackish across the ocellar region, cinereous yellow in front, the pile black. Antennæ reddish yellow, the arista brown.

Mesonotum bluish black, median vitta bright blue, the sides broadly reddish yellow, the black part covered with rich brownish-ochreous pollen except laterally; pile blackish at least behind the suture. Mesopleura except anteriorly, a large spot on the sternopleura above, a large triangle on the pteropleura and a small spot above the front coxæ, reddish yellow; pleura pale yellow pilose. Scutellum dull orange, black-haired.

Legs reddish yellow; posterior femora with a broad preapical black band; posterior tibiæ blackish with the base and broad apex reddish; posterior tarsi blackish. Anterior four coxæ brown.

Wings cinereous hyaline; stigma luteous. Squamæ and halteres pale orange, the former with yellowish fringe.

Abdomen orange; first segment black apically; second segment with basal and apical black fasciæ of almost equal width, the median orange fascia slightly wider than either of the black ones. Third and fourth segments with the apical third black, the bands narrowly interrupted; in the middle with a more or less continuous geminate black stripe of which the arms diverge and are somewhat enlarged anteriorly. Fifth segment with an elongate oval opaque black basal spot in the middle and the posterior margin blackish. Genitalia ferruginous, shining black on the right side. Pile black, yellow on the sides of the basal two segments and venter.

FEMALE.—The black of the cheeks extends triangularly onto the lower part of the face at the sides. Front black, thinly reddish-brown pollinose, the sides narrowly orange on the lower three-fifths; pile black. Vertex and upper part of occiput with reddish-brown pollen. Orange fascia on second segment wider than either black one; fifth segment black apically, the sixth reddish with the sides black.

TYPES.—Holotype, male, and allotype, female, "Ecuador."

Mesogramma watsoni, new species

Figure 1

Similar in color to *duplicatus* Wiedemann but smaller and with different male genitalia. Length, 4–5 mm.

MALE.—Face and front yellow, the sides of the former broadly white pollinose. Vertical triangle long, rather dull black, the vertex brownish yellow pollinose; pollen in front of ocelli yellowish; immediately behind the ocelli broadly shining and more or less bronzed. Occiput cinereous pollinose and white pilose, the upper fourth or more brownish-yellow pollinose and yellowish pilose. Vertical triangle with black pile. Antennæ pale orange, the arista mostly brown. Face strongly produced.

Mesonotum greenish black, in the middle with a bluish-gray vitta, the sides broadly yellow and broadly bordered inwardly with shining black, the disc brownish

yellow or pale brownish pollinose. More than the posterior half of the mesopleura, a large spot on the sternopleura, a triangle on the pteropleura and a spot above the front coxæ, yellow, the spot on the sternopleura white pollinose. Scutellum reddish yellow, black pilose. Mesonotum yellow pilose, at most a few black hairs on the posterior calli.

Legs reddish yellow; posterior femora with a rather narrow brownish preapical band, their tibiæ with an obscure sub-basal band of brownish, the basal and apical two segments of their tarsi also brown; anterior coxæ blackish on basal half.

Wings cinereous hyaline; stigma luteous. Squamæ and their fringe pale yellow. Halteres pale yellow.

Abdomen orange, with black bands and spots. First segment black with the narrow anterior and broad lateral margins orange. Second segment with the basal sixth and apical fourth black, the basal fascia not reaching the lateral margins. Third and fourth segments with the apical fourth black and with a pair of median spots toward the front, the remnants of the median geminate vitta; the black bands sometimes in part more or less dark reddish or ferruginous; black fascia opaque with the posterior part shining. Fifth segment with a median elongate oval spot at the base and the tip more or less continuously black. Genitalia with a large shining black spot. Pile black; yellow on first segment, sides of the second and venter.

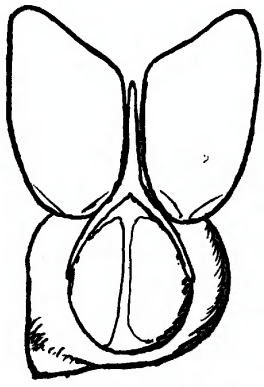

Fig. 1. *Mesogramma watsoni*, new species. Ventral view of male genitalia.

FEMALE.—Front black, the sides narrowly yellow to above the middle; thinly brownish yellow pollinose below the ocelli and thickly so at the vertex. The geminate stripes on the third and fourth abdominal segments are distinctly indicated; black spot at base of fifth segment subtriangular.

TYPES.—Holotype, male, Aux Cayes, Haiti, March 15–20, 1922, (F. E. Watson). Allotype, female, Yallahs Valley, Blue Mountains, Jamaica, February 27, 1911, (J. A. Grossbeck). Paratypes: male, same data as allotype; male, Guane, Cuba, September 24–26, 1913; female, Chapada, Brazil (Williston Collection); male, Aquadulce, San Lorenzo Mt., Colombia, December 26, 1922, (M. A. Carricker); male, Corumba, Brazil, December 14–23, 1919.

Mesogramma difficilis, new species

Figure 2

Related to *duplicatus* Wiedemann and similar in color in *watsoni*, new species, but with very different male genitalia and averaging larger in size, having a length of 5.5 to 6 mm. In both sexes this species agrees so closely with *watsoni* that it can only be definitely determined by an examination of the male genitalia. As a general rule, the pteropleura is less extensively yellow and has a strong bluish reflection on the anterior half except above; the black abdominal fasciæ appear more inclined to be poorly marked and they may be only faintly indicated on the third and fourth segments. In the female the opaque black spot on the fifth segment is more orbicular or wider apically instead of basally.

TYPES.—Holotype, male, Coamo Springs, Porto Rico, June 5–7, 1915, (Lutz and Mutchler). Allotype, female, Coamo Springs, July 17–19, 1914, (H. G. Barber). Paratypes: male, Caguas, Porto Rico, May 28–29, 1915, (Lutz and Mutchler); male, Adjuntas, Porto Rico, June 8–13, 1915, (Lutz and Mutchler); male, Manati, Porto Rico, March 5, 1914, (F. E. Lutz); female, Corozal, Porto Rico, July 2, 1915, (Lutz and Mutchler); female, Aibonito, Porto Rico, June 1–3, 1915, (Lutz and Mutchler); male, Tumatumari, British Guiana, July 11, 1911, (F. E. Lutz).

Mesogramma tænia, new species

Figure 3

Superficially similar to *duplicatus* Wiedemann but smaller and with differently shaped genitalia in the male. The outer forceps are evenly rounded apically and the length is only 4 to 4.5 mm.

MALE AND FEMALE.—Except for differences in the male genitalia it is difficult to point to characters for the separation of this species from its allies. There is, however, a complete or partly formed narrow, yellowish pollinose, submedian vitta

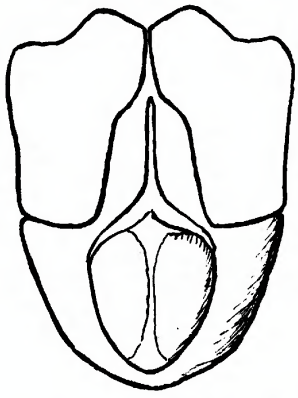

Fig. 2. *Mesogramma difficilis*, new species. Ventral view of male genitalia.

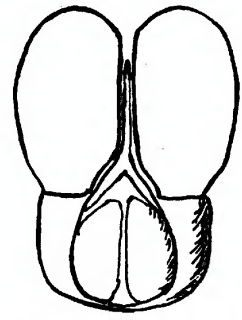

Fig. 3. *Mesogramma tænia*, new species. Ventral view of male genitalia.

on the mesonotum; the opaque black spot on the fifth abdominal segment forms, in the female, a longitudinal spot which is about twice as long as wide; in the male the spot is more oval.

TYPES.—Holotype, male, Corozal, Canal Zone, January 19, 1929. Allotype, female, Patilla Point, Canal Zone, January 15, 1929. Paratype, female, Barro Colorado Island, Canal Zone, December 27, 1928, (Curran). Another female, lacking its head, was taken by Dr. Lutz at Balboa, Canal Zone, November 7, 1923.

Mesogramma lutzi, new species

Related to *floralis* Fabricius but distinguished by the very broadly interrupted yellow lateral border of the mesonotum and wholly reddish lateral margins of the second abdominal segment. Length, 5 to 5.5 mm.

FEMALE.—Face moderately produced; yellow, with a broad median black or ferruginous vitta, the sides whitish pollinose; front broadly yellow on the sides to above the middle; the median dark vitta of almost equal width throughout. Front shining black, the vertex broadly cupreous or bronzed, in front of the scutellum brownish pollinose, the pollinose fascia emitting a median stripe reaching almost halfway to the antennæ and occupying the median half of the black vitta. Occiput cinereous pollinose. Pile whitish, black on the upper half of the front. Antennæ reddish yellow, the third segment broadly blackish above; arista brown.

Mesonotum greenish black in ground color, yellowish brown pollinose, in some views with wide median and sublateral grayish vittæ, in others with two brownish yellow ones. Lateral margins in front of the suture and on the posterior half behind the suture, broadly yellow. Posterior half of mesopleura, a large, ovate, contiguous spot below and a spot above the front coxæ, yellow. Scutellum black with the free border broadly yellow. Pile cinereous white, a few black hairs on the apex of the scutellum.

Legs yellowish, anterior four femora with a large, obscure, preapical brownish spot above, the posterior pair brown on the apical two-thirds except the apex; posterior tibiæ brown except the apex and broad base, with a broad reddish median band; tarsi and coxæ brown.

Wings cinereous hyaline; stigma luteous. Squamæ pale yellowish, with whitish fringe. Halteres reddish yellow.

Abdomen shining black with orange markings. First and second segments black with the sides orange. Third segment on either side with a large, subquadrate orange spot which is gently concave behind, is narrowly separated from the base of the segment except at the sides, is wider than long, and is produced triangularly backward along the lateral margin; the spots are wider than long and separated from each other by one-third the width of the segment, at their middle occupying less than the basal half of the segment. The spots on the fourth and fifth segments are similar to those on the third but their inner ends are produced more or less toward the posterior margin of the segment and less sharply defined. Pile pale yellowish basally and on the lateral margins, black dorsally.

TYPES.—Holotype, female, Frijoles, Canal Zone, November 8–15, 1923, (F. E. Lutz). Paratype, female, Fort Davis, Canal Zone, February 9, 1929, (Curran).

Mesogramma slossonæ, new species

Related to *basilaris* Wiedemann but with the lateral margins of the mesonotum yellow and the scutellum mostly black-haired. Length, 7 mm.

MALE.—Face and front reddish yellow, the sides of the former broadly whitish pollinose. Occiput cinereous pollinose, yellowish above, the vertex brown. Vertical triangle bronzed behind the ocelli, gray pollinose in front, the ocellar region opaque blackish. Pile whitish on the occiput, yellowish toward the vertex, black on the vertical triangle. Face moderately produced, most prominent in the middle. Antennæ orange.

Mesonotum æneous, brownish pollinose, the sides broadly reddish yellow; median stripe blue; toward either side with a grayish vitta, the area bordering the yellow margins shining. Pleura shining bluish black, the posterior half of the mesopleura and a large, contiguous spot on the sternopleura, yellow. Scutellum black, the free border orange; pile black on more than the apical half.

Legs reddish yellow; anterior four coxæ, preapical two-thirds of the posterior femora, their tibiæ, with the exception of the base, and their tarsi wholly black. Anterior four femora with a broad, preapical brownish spot above, the middle pair with indications of a second spot toward the base.

Wings cinereous hyaline; stigma luteous. Squamæ, their fringe and the halteres reddish yellow.

Abdomen black and orange. First segment black with the anterior border broadly orange laterally. Second segment black, with a slightly arched, sub-interrupted orange fascia on the anterior half, the fascia somewhat narrowed at the lateral margins; pale fascia bordered with opaque black except the sides. Third segment black, the anterior two-fifths in the middle orange, narrowed to one-fourth the length of the segment at the sides, interrupted in the middle by a broad, anteriorly expanded opaque black vitta, the orange band bordered with opaque black. Fourth segment orange with a large, sub-rectangular shining black spot on either side and a geminate median vitta on the anterior three-fifths. Fifth segment with a longitudinal, oval, opaque black spot basally in the middle and a sub-quadrate shining black spot on each posterior angle. Genitalia dark reddish, the right half mostly black. Outer forceps narrow, twice as long as wide. Pile black; cinereous on the first segment and sides of the second.

HOLOTYPE.—Male, Biscayne Bay, Florida, (Mrs. A. T. Slosson).

Mesogramma nitidiventris, new species

Abdomen shining black, the fifth segment with obscure reddish markings, sides of mesonotum æneous; face yellow. Length, about 8 mm.

MALE.—Head black, the face and frontal triangle reddish yellow, the sides of the former thinly white pollinose. Eyes touching for the length of only four facets. Vertical triangle long, violaceous at the vertex, deep blue immediately behind the ocelli, brownish ochreous pollinose in front, the ocellar region opaque black or deep brown. Pile of the vertical triangle black, elsewhere whitish or whitish yellow. Face concave above, only moderately produced. Antennæ reddish yellow, the arista black.

Mesonotum opaque brown, in some lights almost black, the sides broadly æneous, bordered interiorly by a narrow stripe of brownish yellow pollen, the median vitta cinereous. Humeri æneous, obscurely reddish behind; posterior calli obscurely reddish, emitting an obscure wide vitta anteriorly halfway to the base of the wings. Pleura æneous, thinly whitish pollinose, the posterior border of the mesopleura and an oval, contiguous spot below, pale yellowish; apical border of the scutellum narrowly yellowish. Pile of thorax and scutellum wholly whitish.

Coxæ and femora black, the apices of the latter reddish; tibiæ reddish, the anterior four with the median fifth, the posterior pair with the median three-fifths, blackish; tarsi reddish, the apical two or three segments brown. Femora wholly pale-haired.

Wings strongly tinged with brownish yellow; stigma luteous. Squamæ and their fringe white. Halteres reddish yellow.

Abdomen shining black, the sides of the fourth and fifth segments reddish, the fourth very narrowly so; fifth obscurely reddish on the apical half of the median two-thirds, the reddish color partly divided by a median production of the black basal

ground color. Genitalia large, shining black, the left side dull reddish. Pile black, yellowish on the first segment and sides of the second.

HOLOTYPE.—Male, Victoria, Brazil, October.

Mesogramma norma, new species

Scutellum yellow; legs yellow, with black markings; abdomen black and yellow fasciate. Length, about 9 mm.

MALE.—Face, front and cheeks pale yellow, the sides of the face white pollinose. Face very strongly produced below, the oral margin very strongly oblique in profile; face and front with inconspicuous pile. Occiput and vertical triangle black in ground color, the former yellow pollinose and pilose. Vertical triangle long and narrow, yellowish pollinose in front and at the vertex, the ocellar region with black pollen, the space behind with violaceous or bronze reflections, the pile short and black. Antennæ yellow, the third segment broadly black above, arista black except its base.

Mesonotum olivaceous, the sides broadly pale yellow; thickly covered with brownish ochreous pollen, the median vitta blue, bordered with cinereous; there also appears to be a large, rectangular yellow spot on the anterior border contiguous with the humeri. Scutellum dull reddish yellow. The pale spots on the brownish pleura are very large, the spots above the front coxæ are yellow and the propleura is of the same color. Pile pale yellowish, black on the scutellum.

Legs yellow; a broad preapical band on the posterior femora, a median band on their tibiæ and the posterior tarsi wholly, brown.

Wings cinereous hyaline; stigma pale luteous. Squamæ yellow, with brownish border and brownish-yellow fringe. Halteres yellow.

Abdomen black and pale orange. First segment orange with a black posterior fascia on either side. Second dull black with an orange fascia which is about equal in width to the posterior black fascia but wider than the anterior one. The third and fourth segments are marked like the second except that the basal black fascia is very narrow and does not reach the lateral margins and the apices of the segments are obscurely reddish. Fifth segment orange with a median dull black vitta extending from the base to the apical fourth. Genitalia orange with a large, shining black spot. Pile black except on the first segment and basal angles of the second.

HOLOTYPE.—Male, Corozal, Canal Zone, January 16, 1929, (Curran).

Mesogramma purus, new species

Abdomen shining black and pale orange, the pale fasciæ entire; scutellum black with yellow border. Length, 6 to 7 mm.

MALE.—Face and front pale yellow, with inconspicuous pile; cheeks and occiput black, the latter yellow pollinose above, cinereous below, yellow pilose. Vertical triangle long and narrow, violaceous on posterior half, brownish yellow pollinose in front of the occelli, the ocellar triangle dull black; pile black. Face moderately produced. Antennæ pale orange, the arista black except at its base.

Mesonotum opaque black, with three grayish vittæ, the lateral margins broadly yellow; the median vitta is broad and lacks a blue tinge, the sub-median vittæ have a yellowish tinge and are a little narrower than the black vittæ separating them from the median one; the black bordering the yellow sides is shining and somewhat metallic. Posterior half of mesopleura and a large, roundish contiguous spot below, pale

yellow. No yellow spot above the front coxæ. Pleura shining blue-black. Scutellum shining black with the free border very broadly pale yellow. Pile reddish yellow, black on the scutellum and posterior calli.

Legs yellow, a preapical band on the middle femora, preapical third of posterior femora, posterior tibiæ except the base and apex and the apical three or four segments of the posterior tarsi, black. Front and middle coxæ brown.

Wings cinereous hyaline; stigma luteous. Squamæ with brown border and fringe. Halteres reddish yellow.

First abdominal segment pale orange, the posterior border irregularly black fasciate. Second segment with a broad basal black fascia which is slightly widened towards the sides, an orange fascia which may be either wider than or slightly narrower than the basal black fascia, the posterior two-fifths of the segment shining black, the pale fascia sometimes a little widened in the middle. Third segment with the posterior third shining black, the black color narrowly interrupted in the middle and always broadened on the lateral fourth where it reaches the basal fourth of the segment, the anterior margins of the black lateral areas either transverse or gently convex; from the inner ends of the black fascia there is usually a median geminate black vitta extending forward to the anterior fifth of the segment, the two lines composing it very narrow. Fourth segment similar to the third but the posterior black fascia is a little narrow on the median section and may be broadly interrupted on either side, in such cases leaving a large, rectangular black lateral spot. Fifth segment with three broad black vittæ which taper posteriorly, the outer two somewhat oblique. Genitalia large, short conical, black on the right side, orange on the left and ventrally.

Types.—Holotype, male, Corozal, Canal Zone, January 19, 1929. Paratypes: two males, Corozal, January 16 and 19, 1929, (Curran).

This species is close to *ciliatum* Giglio-Tos but the arms of the median geminate black vittæ are separated from the black lateral areas by fully three times the width shown in Giglio-Tos' figure.

Mesogramma clara, new species

Second abdominal segment orange with the apical fourth black; legs reddish yellow, the posterior pair black annulate. Length, 6 to 6.5 mm.

Male.—Face and frontal triangle yellow, the face strongly produced. Cheeks, occiput and vertical triangle black in ground color; gray pollinose, the upper half of the occiput with yellow pollen. Vertical triangle violaceous on posterior half, the ocellar region opaque black, the triangle in front of the ocelli gray or yellow pollinose. Pile whitish, on the upper fourth of the occiput and vertical triangle, black. Antennæ reddish yellow; arista black except at its base.

Mesonotum dull black, partly opaque, the sides broadly yellow; a median gray vitta does not reach the posterior border. Pile black on the black portion and on the scutellum, yellow on the sides and pleura. Pleura metallic black, the posterior half or more of the mesopleura and a large, contiguous spot below, yellow. No spot above the front coxæ. Scutellum shining black, the free border broadly yellow.

Legs reddish yellow; anterior four coxæ brown or black on basal half; preapical fourth of the posterior femora black, the median half of their tibiæ and the apical two segments of the posterior tarsi, brown.

Wings cinereous hyaline. Squamæ yellow, with brown border and fringe. Halteres pale orange.

Abdomen orange and back, shining. First segment orange with the posterior border black except laterally. Second segment orange with about the apical fourth black. Third segment orange with the apical third, narrowed to almost one-fourth on the median third, black, the black fascia narrowly interrupted in the middle. Fourth segment orange with a large black spot on either side, the spots convex in front, reaching the basal fourth of the segment near their inner margins and narrowed at the sides to occupy only the posterior half; between these black spots is a ferruginous or at least darker reddish connecting fascia which is interrupted in the middle where a geminate brownish vitta reaches forward almost to the anterior margin of the segments, the two stripes forming it somewhat enlarged anteriorly. Fifth segment with three black vittæ, the median one tapering and usually reaching but little beyond the middle of the segment, the outer ones broad, their inner edges coinciding with the inner limits of the deep black spots on the preceding segment. Genitalia shining black.

FEMALE.—Front yellow on lower three-fifths, with a median bluish black vitta which widens anteriorly and is narrower above than the yellow lateral stripes. Pile sparse and yellow in front of the ocelli. Abdomen broader than in the male, the third segment with two small brown spots anteriorly representing the anterior ends of a geminate vitta; in other respects the markings are unusually similar to those of the male. Sixth segment broadly shining black on the sides and with an incomplete median vitta. Seventh segment polished black.

TYPES.—Holotype, male, Barro Colorado Island, Canal Zone, February 18, 1929. Allotype, female, Barro Colorado Island, January 9, 1929. Paratypes: two males, Barro Colorado Island, January 10, 1929; one male, France Field, Canal Zone, January 18, 1929, (Curran); female, New Culebra, November 21, 1915, (T. Hallinan).

Mesogramma panamensis, new species

Differs from *basilaris* Wiedemann and *floralis* Fabricius in having the apex of the second abdominal segment broadly reddish. The genitalia are rather similar to those of *floralis* but there is no yellow spot above the anterior coxæ. Apical three abdominal segments wholly dark reddish. Length, 5 mm.

MALE.—Face and frontal triangle yellow, the former broadly white pollinose on the sides. Cheeks black. Occiput gray pollinose, with yellow pollen on the upper fifth, the pile silvery white. Vertical triangle long and narrow, brownish yellow pollinose in front, opaque blackish around the ocellar triangle, the posterior half bronzed or violaceous; pile black. Pile of upper part of the occiput yellowish, of the face, inconspicuous and white. Face rather strongly produced. Antennæ reddish yellow, the third segment pale brown above; arista brown.

Mesonotum greenish black, the sides broadly shining, the disc brown pollinose with a conspicuous, broad, median gray vitta and less conspicuous, bluish-gray vittæ bordering the shining lateral margins. In some views the opaque brown stripes show an inclination to develop medianly into narrow, brownish yellow vittæ. Humeri yellow; from the inner ends of the humeri a narrow brownish-yellow vitta extends to the suture; behind the suture the lateral margins are obscurely brownish yellow. Posterior half of mesopleura and a large, contiguous spot below, yellow, more or less

whitish pollinose. Pile yellow, at most a few black hairs on the apex of the scutellum; scutellum shining black, the apical border broadly dull brownish yellow.

Legs reddish yellow; a broad preapical black band on the posterior femora; posterior tibiæ brown, the base and apex yellow, an obscure median band of reddish; posterior tarsi brown. Front and middle coxæ æneous.

Abdomen shining deep reddish with black base. First segment shining black. Second segment shining black basally, with a large, oval transverse spot of opaque black which is broadly connected in the middle with the black base; posterior margins laterally and the lateral margins on the posterior fifth narrowly blackish. Genitalia with a large shining black spot. Pile black, yellow on the base, lateral margins and venter.

TYPES.—Holotype, male and one male paratype, Panama City, Panama, December 20, 1928, (Curran).

Mesogramma mitis, new species

Related to *verticalis* Curran but the face wholly yellow. Length, 4.5 mm.

FEMALE.—Face moderately produced, reddish yellow, the sides broadly white pollinose. Front bluish black, opaque on upper two-fifths, the sides narrowly yellow to above the middle, the dark frontal vitta widest at the level of the antennæ. Occiput and cheeks cinereous pollinose, pile whitish, black on the upper third of the front. Antennæ reddish yellow; third segment brown except below; arista brown.

Mesonotum bronze-black in ground color, dark brownish pollinose, with three narrow cinereous vittæ, toward the sides strongly bronzed; lateral margins broadly yellow behind the suture, in front of the suture blue-black, the humeri yellow. Posterior half of mesopleura, a large, contiguous spot below and a small spot above the front coxæ, yellow. Scutellum dull black, the free border broadly yellow except at the immediate base.

Legs reddish yellow; a broad preapical band on the posterior femora, their tibiæ except the base and apex and their tarsi wholly, brown; anterior four tarsi becoming brownish apically.

Wings cinereous hyaline; stigma pale luteous. Squamæ yellow, with whitish fringe. Halteres reddish yellow.

Abdomen black, with orange fasciæ. First segment shining black with the anterior and lateral margins orange. Second segment with a rather narrow, narrowly interrupted orange fascia lying immediately in front of the middle of the segment and bordered by opaque black. Orange band on third segment wider, narrowly separated from the base of the segment and triangularly emarginate in the middle posteriorly and at the lateral margin; fourth segment similar but the pale fascia interrupted. Fifth segment with the orange band broadly interrupted in the middle and with the inner ends triangularly produced backward to the apical fourth of the segment. Sixth and seventh segments black. The orange fasciæ are bordered with opaque black, the narrow lateral margins and very broad apices of the segments shining black. Pile black, yellow on first segment and sides of the second.

HOLOTYPE.—Female, Montego Bay, Jamaica, March 6, 1912.

Mesogramma vierecki, new species

Face reddish, very strongly produced; scutellum orange; abdomen with very narrow orange fasciæ. Length, 8 mm.

FEMALE.—Face reddish, with a large rectangular black spot connected with the black cheeks on the lower half. Front black, the orbits with linear yellow stripe on the lower three-fifths; apparently pollinose in front of the ocelli, behind the ocelli violaceous; sparsely black pilose. Occiput cinereous yellow pollinose and white pilose. Antennæ brownish red, the arista brown.

Mesonotum opaque black, the sides broadly reddish; pile black; humeri yellow; inside each humerus a large, rectangular cinereous pollinose spot. Posterior half of the mesopleura, an obscure spot below and a triangle on the upper anterior part of the pteropleura, reddish. Scutellum orange, black pilose.

Legs reddish, the anterior four coxæ, except their apices, and the posterior tarsi wholly, black; wholly black-haired.

Wings cinereous hyaline; stigma luteous. Squamæ orange, with short yellow fringe. Halteres orange.

Abdomen shining black, the basal half of the second to fifth segments opaque and bearing a narrow orange fascia, which crosses the basal third of the segment. First segment bordered with orange in front. The fascia on the second segment is linear, tapers toward the lateral margins from which it is broadly separated and is obscurely interrupted in the middle. Fascia on third segment about one-fifth as wide as the length of the segment, of equal width and produced forward at the lateral margin almost to the base of the segment. Fourth segment with similar fascia but it is slightly narrower and is narrowly interrupted in the middle. Pale fascia on fifth segment still narrower and broken up into four elongate spots. Sixth and seventh segments polished black. Pile black; cinereous on first segment, sides of the second and whole of the venter.

HOLOTYPE.—Female, Sero Quenado, Colombia, December 12, (H. L. Viereck).